COMMERCIAL
INSTALLATION GUIDE

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Section 1: APPLIANCE DETAILS

For future convenience, please fill in the following details and retain with your original invoice.

1A: OWNER'S DETAILS

Surname: ..... Given Name(s): .....

Address: .....

Town/Suburb: .....

State/Territory: ..... Postcode: .....

Date of Purchase: .....

Purchased from: .....

Model: ..... Serial Number: .....

Date of Manufacture: .....
(Details on the Data Plate of the water heater)

1B: INSTALLER'S DETAILS

Date of Installation: ..... Installer's Name: .....

Address: .....

Licence number: ..... Installer's Signature: .....

1C: SERVICE HISTORY

Date of Service: ..... Serviced By: .....

Work Carried Out: .....

Signature of Service Agent: .....

Date of Service: ..... Serviced By: .....

Work Carried Out: .....

Signature of Service Agent: .....

Date of Service: ..... Serviced By: .....

Work Carried Out: .....

Signature of Service Agent: .....

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Section 2: INSTALLATION DETAILS

Titan System

Titan 1020 System

Titan Split system

Australian Standard
AS2712 LIC.2650
SAI GLOBAL

WaterMark
AS3498 WMKA2531
SAI GLOBAL

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COMMERCIAL INSTALLATION GUIDE

2a: General Install Requirements

This water heater must be installed by a licensed tradesperson, and in accordance with:

1. AS/NZ 3500.4 National Plumbing and Draining Code, Part 4: Hot Water Supply Systems
2. AS/NZ 3500.4.2, National Plumbing and Draining Code, Part 4.2: Hot Water Supply systems – Acceptable Solutions.
3. Other relevant Australian standards, industry or local water supply regulations or codes for mains pressure storage tanks.

***Installation within NZ must confirm to NZ Building Code G12.**

Note: This water heater is not suitable for pool or building heating.

2a1: Location

a. The water heater should be located as close as possible to the most frequently used hot water outlets.

b. Adequate access must be made for service to the heat pump, water thermostat, relief valve and anode.

c. Ensure that the specification label is clearly visible. The front service cover of the heat pump section (on top of tank) must be accessible from the front of the heater; this **MUST NOT** face the wall. The fan **MUST NOT** be positioned up against a wall (Suggested minimum clearance 500mm *see ref Page 51-54).

d. The Titan Compact model has a noise level similar to an air conditioner's outdoor unit (58dBA @ 1.5 metres); therefore locating the unit away from office or living areas is recommended (both the owner's & any neighbor's).

e. Note: All models are equipped with a sacrificial anode, accessible through the top cover. We suggest allowing 400mm above the top of the water heater (if possible) for clearance to replace the anode (Please refer to Commercial Warranty Section Pages 36-37).

f. For single or multiple water heater installs, Quantum recommends that a 650mm x 650mm plinth be included if installed on a floor subject to wet conditions or outdoors. In single or multiple installations a properly drained overflow tray should be used where property damage could occur from water spillage. (See AS3500.4 for further details.)

Note: The warranty does not cover damage due to leakage of the water heater.

2a2: Corrosion Protection

a. Fittings and the shell surface in contact with the water are to be galvanically compatible.

b. Sealants and/or Teflon plumbing tape should be used on potentially galvanically incompatible fittings. This is to protect against possible electrolytic corrosion between the metals (where moisture penetration could occur due to incorrectly or poorly sealed fittings).

2b: Air Flow

a. The air source models (Compact and split) extract the required heat from air being drawn through their Fin Coil Evaporator. This produces cold exhaust air as a by-product. Therefore, good ventilation of the proposed location for the Compact models or the split models' separate evaporator is required.

b. The Commercial range therefore is best located externally; however a large area with a minimum of 120 cubic meters with natural ventilation may also be acceptable. The separate evaporator in the split models could be located externally or in a large well-ventilated ceiling space or garage. **GOOD VENTILATION IS REQUIRED.**

2c: Evaporator Drain

a. The evaporator drain on the Titan, Titan Split & Titan 1020 Air units should be drained to a suitable location (as per AS/NZ 3500.4.2).

b. This can be accomplished with a length of hose or pipe but must not be connected directly to the PTR valve or expansion valve drain.

This is because during operation, a certain amount of condensate water will flow from the evaporator drain. If allowed to simply flow out of the outlet, this water may pool below the unit and can cause problems.

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2d: Pressure and Temperature Relief (PTR) Valve

a. The Pressure and Temperature Relief Valve (see tank data label for rating), which is supplied with the unit, must be fitted and made accessible so that the release mechanism can be operated and, if required, the valve replaced.

b. The outlet of the PTR valve must be suitably drained to remove the water discharged during the normal heating cycle. The valve thread is RP ½"/15mm and must be installed into the top front socket..

Warning: A separate drain line must be run for this relief valve. It is not permitted to couple the drain lines from the relief valve and evaporator into a single common line. The use of a tundish under the evaporator drain with this then connected to the drain of the PTR valve is acceptable.

2e: Expansion Control Valve (ECV)

a. Where an Expansion Control Valve is fitted to the cold water supply, the ECV should be rated at150kPa lower than the Pressure & Temperature Relief valve (PTR).

b. It is a State requirement for SA & QLD a ECV must be fitted on the cold water supply line between the non-return valve and the water heater.

2f: Cold Water Connection

a. An approved isolating valve or approved non-return valve and union must be fitted between the supply main and the RP ¾"/20mm socket in the water heater.

b. All fittings must be approved by the relevant Authority.

2g: Pressure Limiting Valve

a. This water heater is designed for direct connection to a maximum water supply pressure of 800kPa. Where the mains pressure can exceed or fluctuate beyond this pressure, a pressure-limiting device (complying with AS1357) must be fitted in the cold-water supply line.

b. This device must be installed after the isolating valve and set at or below 500kPa (or 350kPa if a 850kPa expansion control valve is fitted).

c. An ECV is fitted when the water supply has a tendency to form scale. The fitting of an ECV is mandatory in WA, SA and some other areas of Australia as dictated by local regulations.

2h: Caution Regarding Glass Lining of Tank

a. When making the hot and cold water connections to the tank care should be taken not to apply excessive strain as damage to the tank spigots or glass lining may occur.

2i: Suitability for Installation in Frost Areas

a. The R134a refrigerant used has a boiling point of -26ºC. Therefore, there is no risk of damage to the heat pump from frost. Performance may be reduced in very low temperatures, but the system will not be damaged.

2j: Hot Water Connection

a. The hot water pipe should be connected to the RP ¾"/20mm socket as shown in the Installation Diagram (Figures 1 & 2).

b. It is <u>Recommended</u> that all hot and cold water lines be insulated where possible.

c. NOTE: Plugs are supplied with the water heater to plug off the inlet/outlet entries that are not required. Ensure that adequate sealing is applied to the plugs for a tight, leak proof seal.

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2k: Tempering Valves

a. The tempering valve should be fitted on the hot water outlet of the Quantum units to reduce water temperature to the temperature designated in (e.g., 50°C as per the Local plumbing code and all Federal, State requirements.

b. Quantum recommends the use of high performance valves suitable for "Solar" type water heaters.

2l: Electrical Connections

a. Quantum water heaters are designed for single-phase 220/240V 50Hz A/C supply only. All electrical work must be conducted by a Quantum accredited /certified electrician according to the local regulations and AS3000. When connecting to a Light/Commercial Titan unit a 15-amp circuit breaker must be installed at the power supply for the hot water units. The power connection rating for Quantum Domestic water heaters up to 1.1kW is 220-240VAC 50Hz 10A. For ALL Titan Commercial model installations 1.7kW is 220-240VAC 50Hz 15A.

b. A separate circuit breaker must be installed for each unit in multiple installations.

c. It is not recommended to wire the system to an earth leakage circuit breaker. There is lot of moisture present while in operation and this can lead to nuisance tripping.

d. The connection will require an approved, standard 240V On/Off switch or Junction Box in close proximity to the heater. The unit should be connected to Standard Commercial tariff. Off Peak connection is **NOT** recommended for Commercial Quantum heat pump units.

e. The fitted power cord is not to be removed; this cord should be connected with the building wiring in an On/Off switch enclosure or Junction Box. Faulty wiring **WILL** void the warranty if damage has been sustained to the compressor or heat pump from such faulty or sub-standard wiring. ***Please note that your Quantum Heat Pump is now fitted with a Digital Timer. (Not all models). For further information please contact the Quantum Service Call Centre on 1800 644 705.**

2l1: Safety Notes

Note.1: This water heater is fitted with thermostat and over-temperature energy cut-out (both incorporated into the digital controller). Under no circumstances should the water heater be operated without both of these devices being in the circuit. Only a qualified electrician or a Quantum Technician or accredited Service Agent should carry out replacement.

Note.2: If the supply cord is damaged, a Quantum Service Technician or its accredited Service agent /qualified Electrician must replace it, in order to avoid hazard.

Caution: The water heater must be filled with water before turning on the electricity

2m: Refrigeration Connections (Split Models Only)

a. Refrigeration pipe work is highly specialised and should only be completed by a licensed refrigeration mechanic.

b. Maximum refrigeration pipe length from the tank connections to the evaporator is 8m.

c. If the evaporator is mounted below the tank connection point, then a suitable oil trap needs to be installed on the suction line between the evaporator and the heat pump.

2m1: Refrigeration tube sizes

QUANTUM MODEL	COPPER TUBE SIZE – INLET	COPPER TUBE SIZE – OUTLET	COPPER TUBE SIZE – OUTLET (if evaporator below tank level)
150/200-08ASW-134	5/16 Inch (8.0mm)	3/8 Inch (9.5mm)	5/16 Inch (8.0mm)
270/340-11AS4-134	5/16 Inch (8.0mm)	1/2 Inch (12.7mm)	3/8 Inch (9.5mm)
340-17ASW-134	3/8 Inch (9.5mm)	5/8 Inch (16.0mm)	1/2 Inch (12.7mm)

***When the evaporator is below tank level on the Titan model, use a 1/2 Inch (12.7mm) outlet tube.**

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2n: Caution Regarding Drilling the Outer Casing

This is extremely important and **MUST** be adhered to without exception!

DO NOT DRILL ANY HOLES IN OUTER METAL CASING

DRILLING OF ANY HOLES WILL VOID WARRANTY

Section 3: OPERATING INSTRUCTIONS

3a: Filling the Water Heater

Open all hot water taps. Open isolating valve at the cold-water inlet and allow the water heater to fill until water flows through the system. Close each hot water tap after the air is expelled from its line.

3b: Water Quality

Your Quantum water heater has been manufactured to suit the water conditions of most Australian and New Zealand metropolitan supplies. Harsh water supplies can have a detrimental effect on the water heater and its life expectancy. If you are unsure about your water quality you can obtain information from your local water supply authority.

By using the correct anode, this water heater can be used in areas where the Total Dissolved Solids (TDS) content of the water supply is up to 2500 mg/L.

In areas where the TDS exceeds 750mg/L it is possible that the magnesium alloy anode (supplied in the heater) may become over reactive. To alleviate this, the magnesium alloy anode should be checked more regularly, and replaced if necessary. More information is given in the **Commercial Warranty Manual Section on Pages 36-37.**

3c: Caution When Left Operating but Unused

If the water heater is left in an operating condition, but unused for two weeks or more, hydrogen gas (highly flammable) may accumulate on top of the water cylinder. To dissipate this gas safely, it is recommended that:

- A hot tap is to be turned on for several minutes at a sink, basin or bath, but not a dishwasher, clothes washer or other appliance.
- During this procedure there must be no smoking, open flame or any other electrical appliance operating nearby
- If hydrogen gas is discharged through the tap it will probably make an unusual sound similar to air escaping.

*Refer to www.quantumenergy.com.au for additional information.

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SINGLE TITAN INSTALL DIAGRAM:

FIGURE 1: BASIC TANK LAYOUT WITH RECOMMENDED VALVES (EXCEPT TEMPERING)

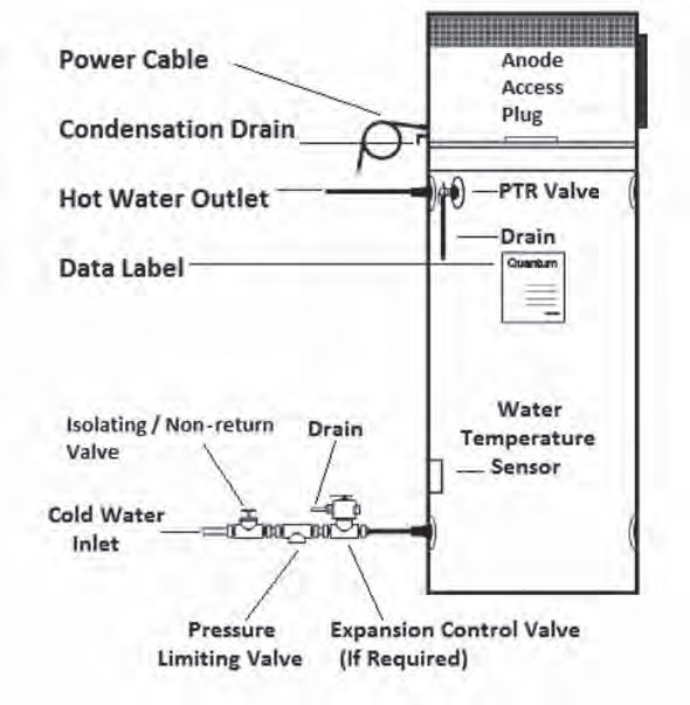
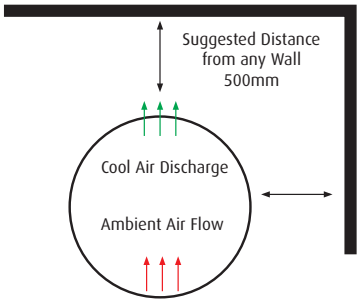


FIGURE 2: INSTALLATION DIAGRAM



Tank Orientation Diagram for Titan Compact Units (Except Split Systems)

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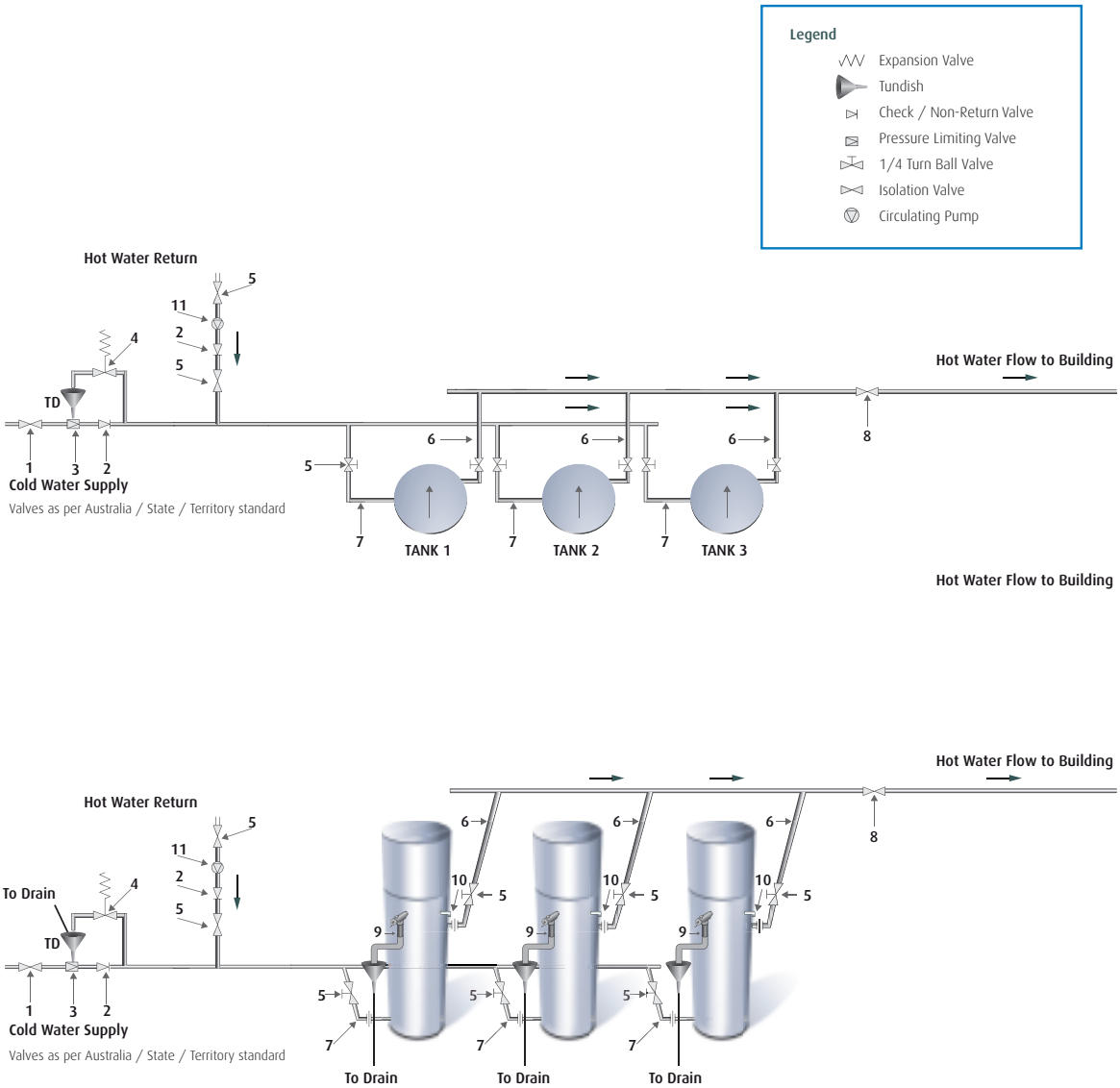
FIGURE 3: QUANTUM TITAN COMMERCIAL – CIRCULATING SYSTEM



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QUANTUM TITAN COMMERCIAL – CIRCULATING SYSTEM

Header Sizes for Multiple Quantum Heat Pumps		
Number Of Heaters In Bank	Nominal Size Of Headers	Minimum Size Of Headers DN
3 to 5	One pipe size larger than branch pipes	25
6 to 10	Two pipe size larger than branch pipes	32
11 to 15	Three pipe size larger than branch pipes	40

Manifolded Titans Specifications		
Ref No.	Description	Specifications
A	Header/Manifold Cold*	AS PER ABOVE TABLE
B	Header/Manifold Hot*	
1	Isolation Valve Cold**	¼ Turn - Ball Valve
2	Check Valve**	Check Valve
3	Pressure limiting Valve	Adjustable Pressure Relief Valve
4	Cold Water Relief Valve	DN20 850kPa to local codes
5	Isolation valves	DN20 1/4 turn ball valves
6	Hot water branch	DN20 **equal length** encapsulated copper
7	Cold water branch	DN20 **equal length** encapsulated copper
8	Isolation Valve Hot**	¼ Turn – Ball Valve
9	PTR Valve	1000kpa (supplied with tank)
10	Condensation Drain	To tundish and drain
11	Circulating Pump	Hot water recirculating pump – Circulating pump
	Distance from wall	500mm where air is exhausted toward wall
	Tank centres	900mm (200mm between tanks)
	Insulation	Min 13mm Armflex or similar to all hot pipework, and all pipework on flow and returns systems
	Electrical	15A isolating switch within 1 metre of each unit. Separate 15A circuit breaker per unit. **NOTE** 3 pin plugs are not recommended
12	Fan box	†Applicable to page 56 diagram

* Manifold/header sizes to be calculated according to flow requirements.
** Same nominal diameter as manifold/header.

*Refer to www.quantumenergy.com.au for additional information.

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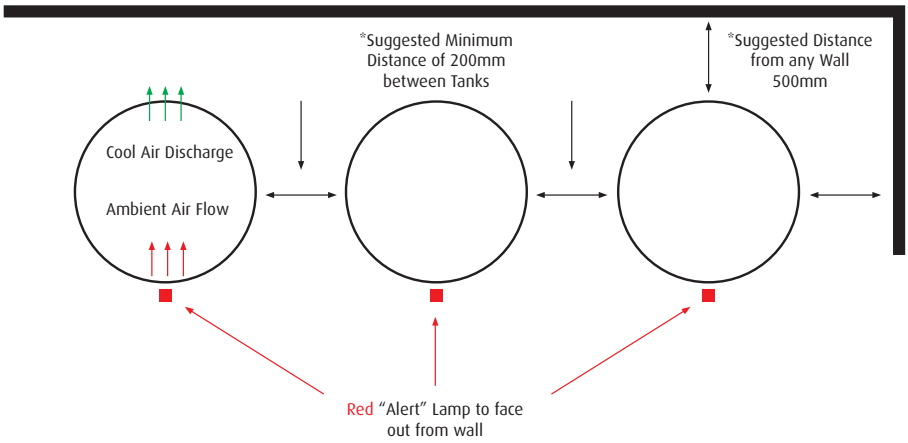
FIGURE 4: HYDRONIC CONNECTION FOR 340-17ACW3-134


*Suggested Minimum Distance of 200mm between Tanks
*Suggested Distance from any Wall 500mm
Cool Air Discharge
Ambient Air Flow
Red "Alert" Lamp to face out from wall

When installing a single Titan Compact unit the intake fan should always point out from, or along the wall.

If the cold air discharge fan is facing towards a wall, the suggested distance between the unit and the wall is *500mm.

Multiple installations of Titan Compacts must be plumbed in using an "Equal Flow Manifold System" failure to do so may void warranty.

When installing multiple Titan Compact units, the fan should never face towards the adjacent unit. (Cold discharge fan to ambient air intake fan) this would reduce the efficiency of the units.

*The space between multiple units should be a minimum of 200mm for air flow, where possible 500mm is suggested for the convenience of service. See schematic above.

*If the distance is less than 500mm off a wall the use of "Baffle" panels may be necessary. Baffles are positioned along the top and between the units to assist the cold air discharge downwards to prevent cold air bouncing back into the ambient air intake.

If you have any questions in regards to installation please contact your local Quantum office or call 1800 644 705 for assistance.

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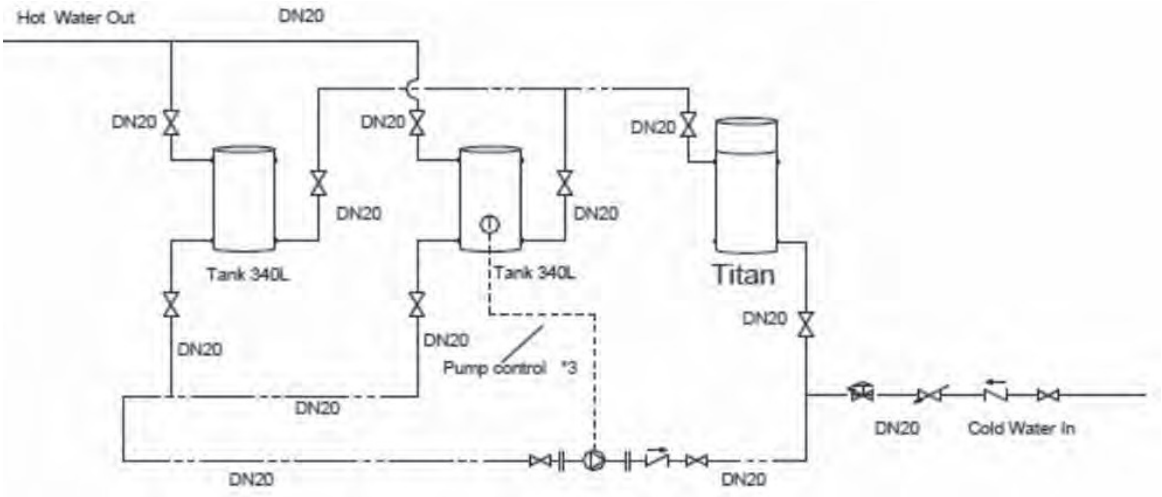
FIGURE 5: HYDRONIC CONNECTION FOR 1020-17ACW-134

Australian Standard
AS2712 LIC.2650
SAI GLOBAL

WaterMark
AS3498 WMKA2531
SAI GLOBAL



Item	Description
⋈	Isolating Valve
⋈	Non Return Valve
⊕	Water Pump (Flow 2.0L/min)
⊣⊢	Rubber Flexble Connection
⋈	Pressure Limiting Valve *1
⋈	Expansion Control Valve *2
⊙	Tank's thermostat *3

Item	Description
———	Cold Water
———	Hot Water
- - - - - - -	Pump control lines

TIPS:
1.If the water supply pressure beyonds 800Kpa,
This device must be installed;
2.It is recommended to install this valve;
3.Water pump could be controlled by the thermostat of tanks.

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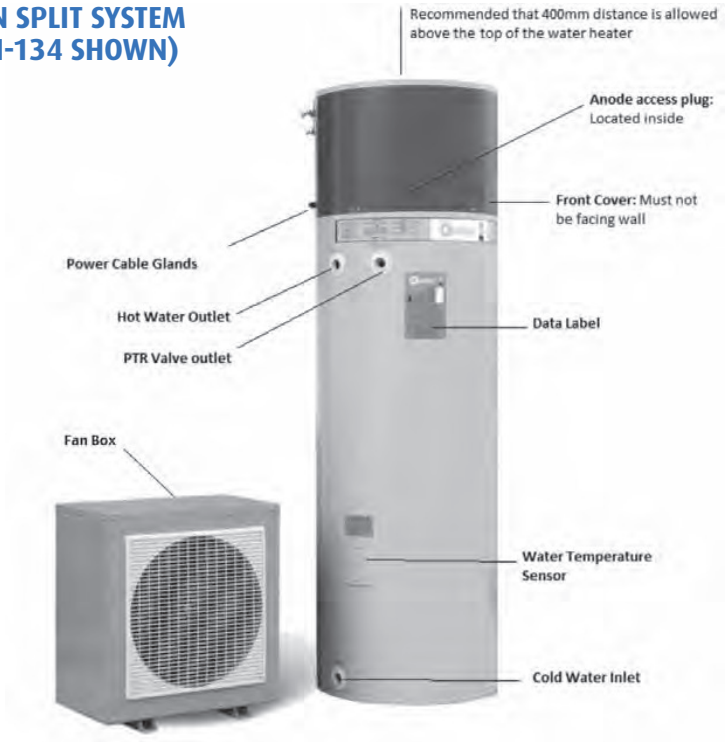
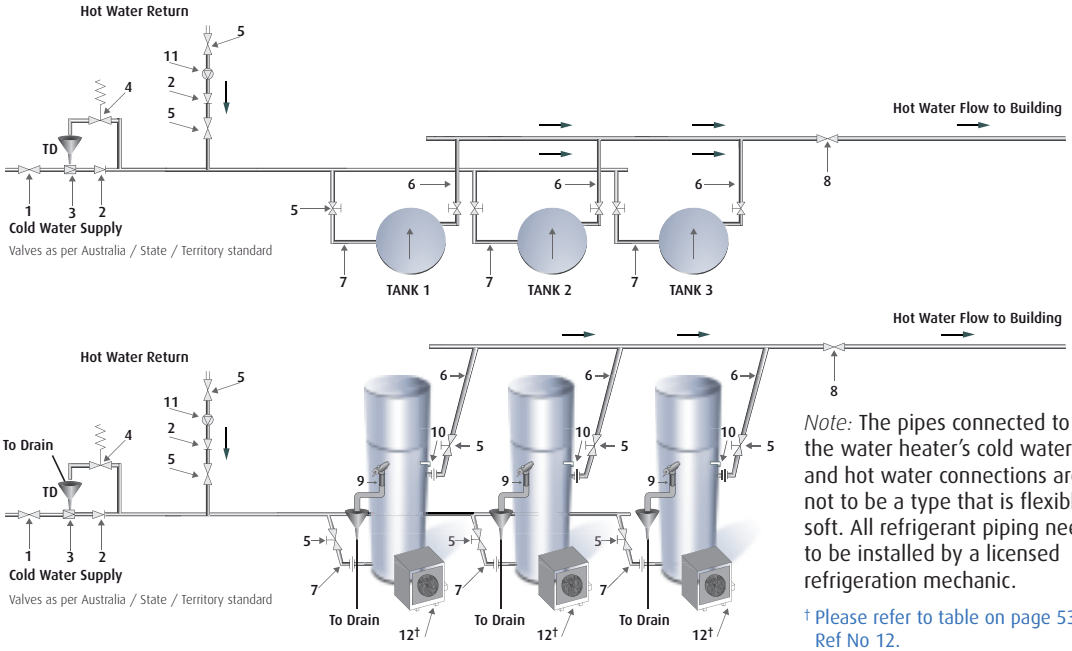
FIGURE 6: TITAN SPLIT SYSTEM (MODEL 340TIH-134 SHOWN)


Recommended that 400mm distance is allowed above the top of the water heater
Anode access plug: Located inside
Front Cover: Must not be facing wall
Power Cable Glands
Hot Water Outlet
PTR Valve outlet
Data Label
Fan Box
Water Temperature Sensor
Cold Water Inlet

Other Split System Models available:

Quantum recommends that the fan box should not extend more than 8m from the tank.

150-08ASW-134, 200-08ASW-134, 270-11AS4-134, 340-11AS4-134, 340-17ASW-134 – (340Ti H-134



Note: The pipes connected to the water heater's cold water and hot water connections are not to be a type that is flexible/soft. All refrigerant piping needs to be installed by a licensed refrigeration mechanic.

† Please refer to table on page 53. Ref No 12.

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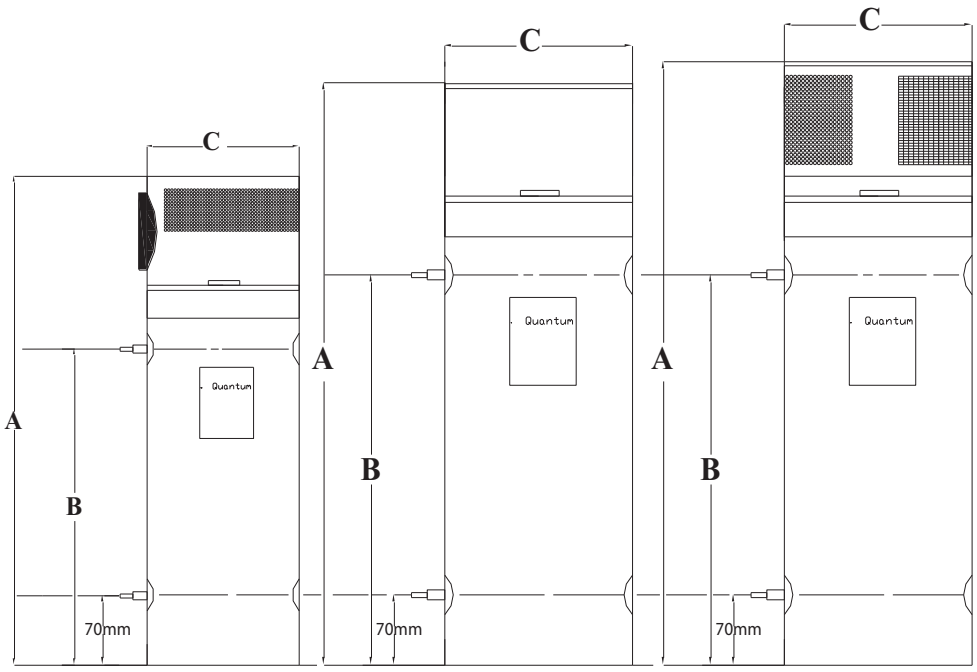
Appendix A: SPECIFICATIONS AND DIMENSIONS

FIGURE 7: SPECIFICATIONS AND DIMENSIONS



MODEL NUMBER	MASS (EMPTY (KG)	MASS (FULL) (KG)	R134a Charge (gm)	DIMENSIONS(MM)			POWER INPUT (W)	NOMINAL CAPACITY (LT)
				A	B	C		
150-08ACW-134	100	250	1650	1620	975	540	660	125
200-08ACW-134	115	315	1650	1950	1305	540	660	175
270-11AC3/4-134	135	405	1850	1900	1190	650	986	250
340-11AC3/4-134	170	510	1850	2200	1490	650	986	315
340-17ACW-134	190	535	2650	2240	1490	650	1660	315
150-08ASW-134	90	240	1650	1545	975	540	660	125
200-08ASW-134	105	305	1650	1875	1305	540	660	175
270-11AS4-134	120	390	1850	1765	1190	650	986	250
340-11AS4-134	155	495	1850	2060	1490	650	986	315
340-17ASW-134 340TIH-134	165	505	2650	2110	1490	650	1660	315

MODEL	EVAPORATOR DIMENSIONS	EVAPORATOR WEIGHT	EVAPORATOR FAN NOISE @1.5 MTR	AIR FLOW LITRES/SECOND(W)
150/200-08ACW-134	Internal	N/A	50dBA	415
270/340-11AC3/4-134	Internal	N/A	52dBA /48dBA	550
340-17ACW-134	Internal	N/A	58dBA	800
150/200-08ASW-134	430× 380× 120	15kg	48dBA	460
270/340-11AS4-134	480× 430× 120	18kg	50dBA	600
340-17ASW-134	655× 580× 380mm	35kg	58dBA	880

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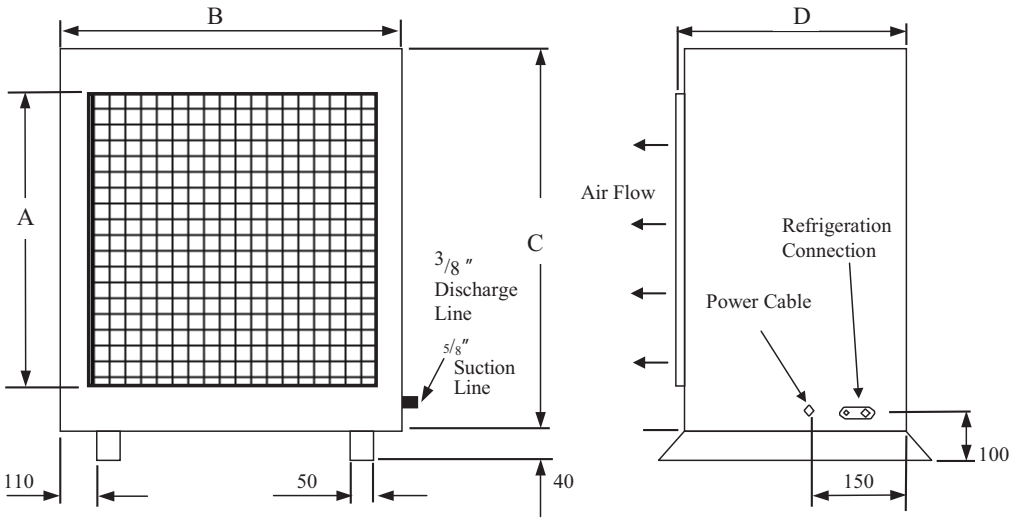
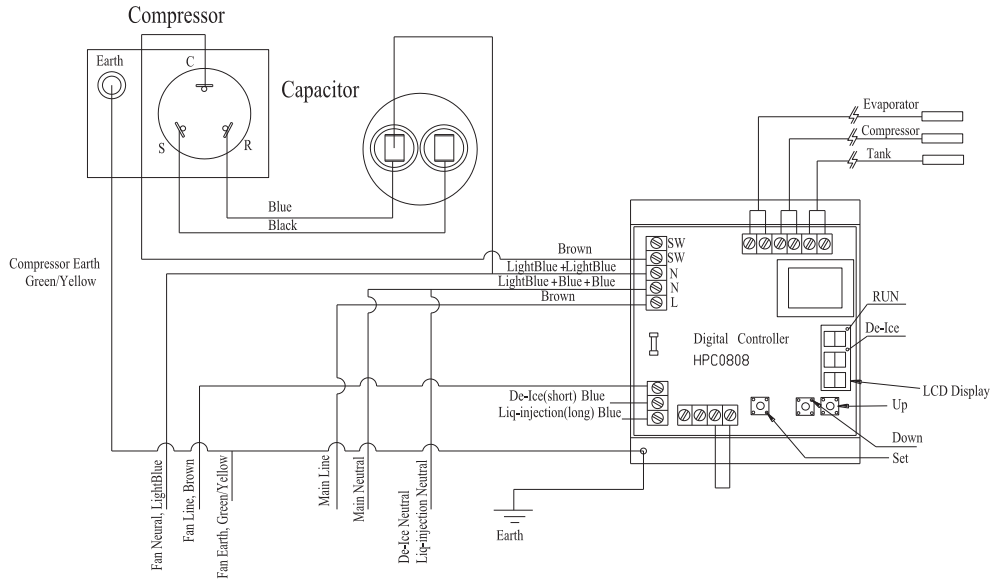
FIGURE 8: SPLIT EVAPORATOR – FINNED COIL



A qualified refrigeration technician must install the Split Finned model. Whilst the plumbing and electrical work is the same as the Compact, this unit also requires on site refrigeration work.

Appendix B: WIRING DIAGRAMS

FIGURE 9: WIRING DIAGRAM: 150/200-08ACW-134 & 270/340-11AC3-134



0001_QEco_D_C_LC_Owners_Manual_Warranty_A4_Spreads_72pp.indd 58 11/04/12 11:41 AM

FIGURE 10: WIRING DIAGRAM: 150/200-08ASW-134 & 340-17ASW-134 (340-TIH-134):

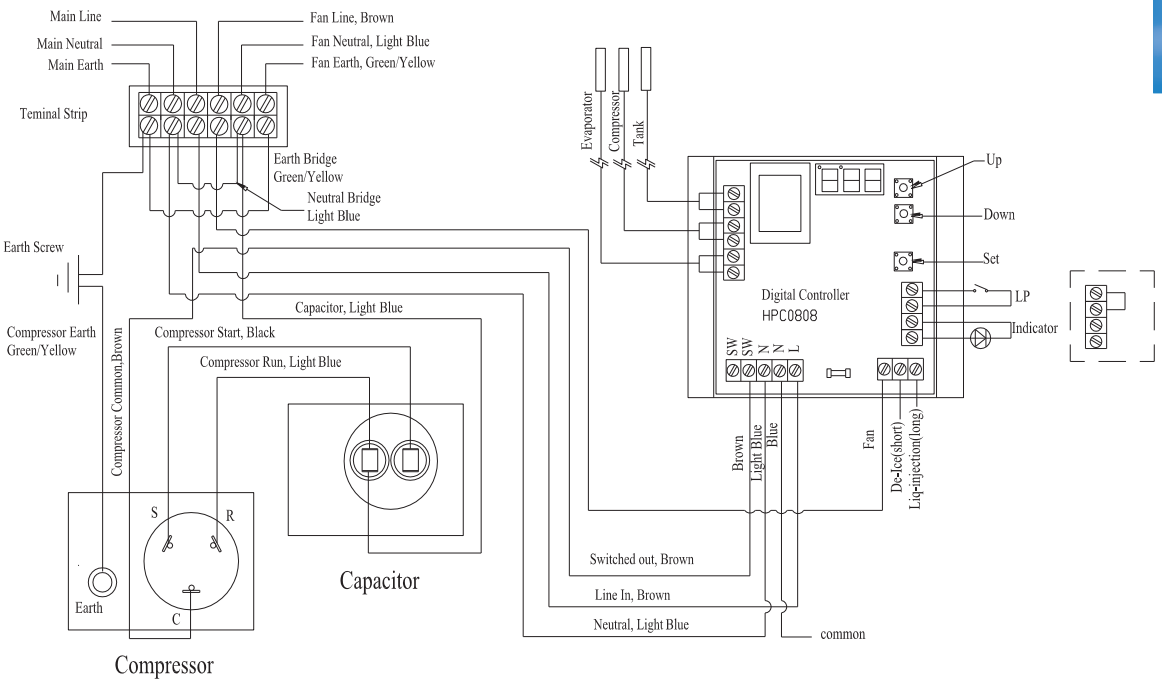


FIGURE 11: WIRING DIAGRAM: 340-17ACW-134

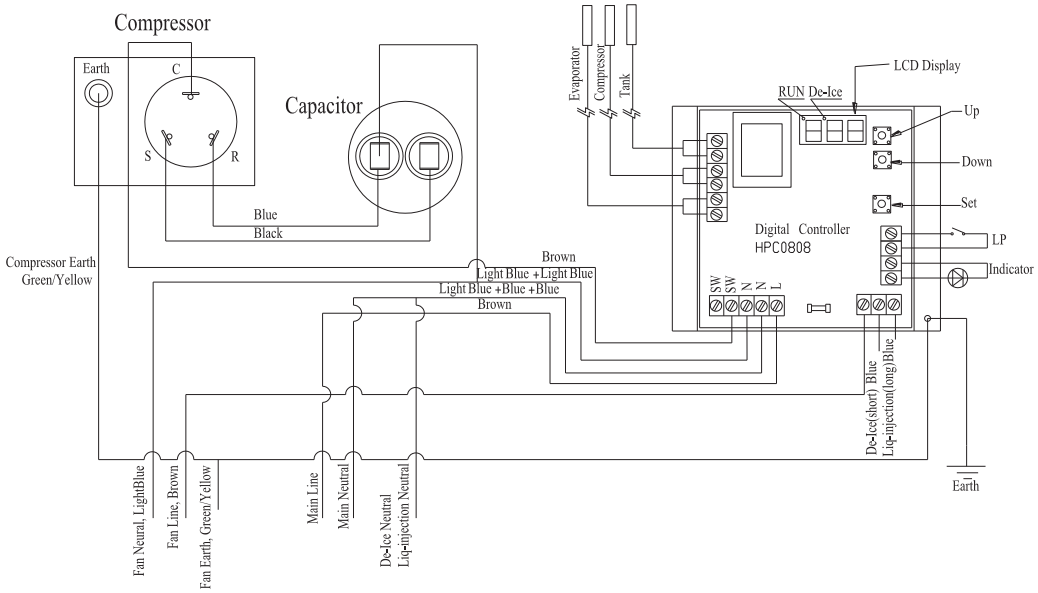


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FIGURE 12: INDICATOR 340-17ACW-134 / 340-ASW-134

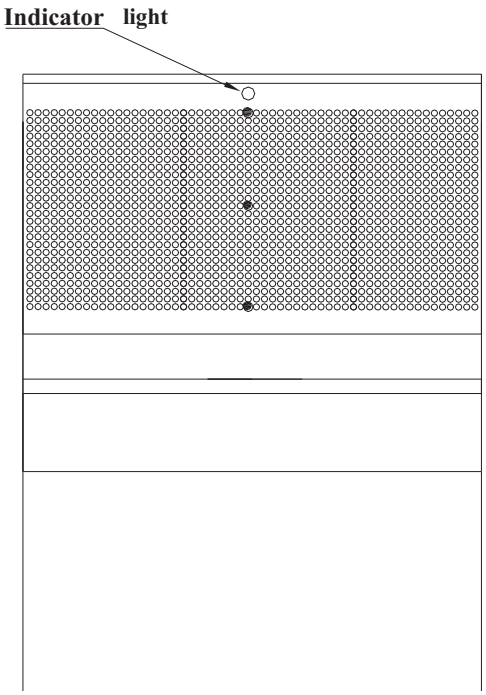

FIGURE 13: WIRING DIAGRAM – WITH TIMER: 150/200-08ACW-134 & 270/340-11AC4-134

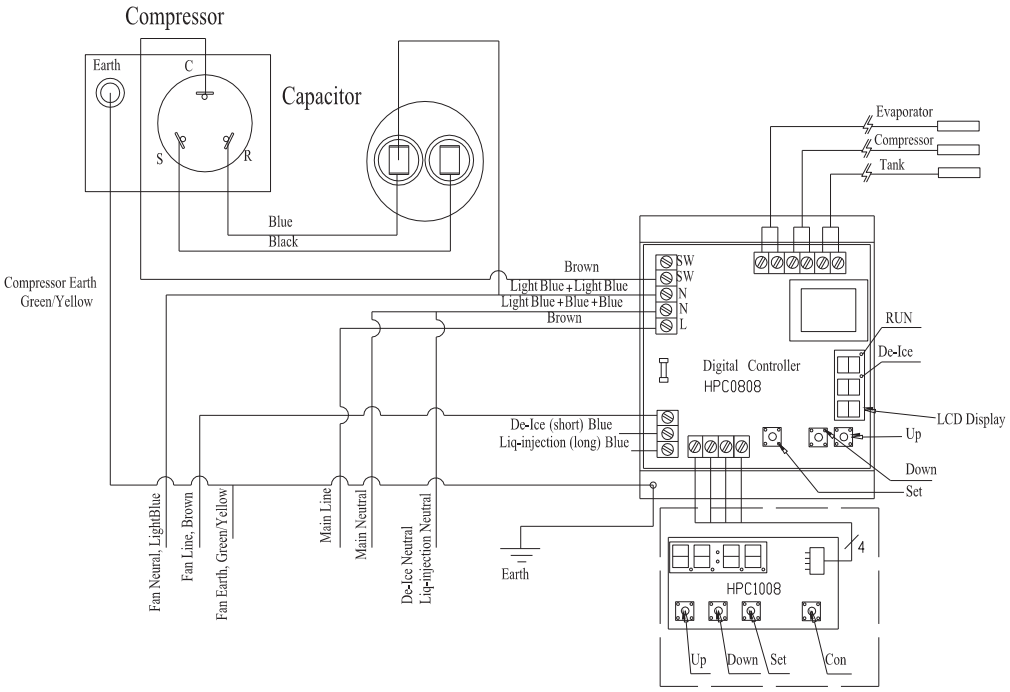

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FIGURE 14: WIRING DIAGRAM – WITH TIMER – 150/200-08ASW-134 & 270/340-11AS4-134